

CRUISE REPORT, JL-86-1

Seq. #431

86010

Vessel: R/V Pelican (U. of Wyoming/National Park Service Research Center)
Cruise number: JL-86-1
Parent project: Glacial history and dynamics of the Jackson Hole area
Funding agency: U. of Wyoming/National Park Service Research Center
Funding amount: 13,800
Contract number: N/A
Contract start and end dates: July, 1 1986 to April 30, 1987

Area of operations: Jackson Lake, Wyo.
Cruise dates: 7-23 July, 1986
Chief scientist(s): Steve Colman (USGS)
Ken Pierce (USGS)
Other scientific party: Ken Parolski (USGS, technician)

Purpose of cruise:

Collection of high-resolution seismic-reflection, bathymetry, and sidescan-sonar data and cores to find and interpret submerged shorelines in Jackson Lake. The lake occupies a tectonic basin dominated by an active, high-angle normal fault along the west margin of the lake and the east side of the Teton Range. Each major fault displacement apparently results in subsidence of the lake basin and tilting to the west. These earthquake events should be recorded by successive submerged, westward-tilted shorelines.

Navigation:

Positions were determined from a three-station Miniranger network. Shadowing by islands and peninsulas was a problem, but generally, signals from at least two stations were received. Distances from the navigation stations were recorded both by hand and on cassette tape.

Scientific equipment employed:

ORE Geopulse seismic system
Benthos hydrophone streamer
Klein 531T sidescan-sonar system
Datum 9300 time-code generator
EPC 312 record annotator
EPC 3200 graphic recorder
Hewlett-Packard 8-track analog tape recorder
Motorola Miniranger navigation system
Raytheon DE 719 Fathometer
Small gravity and piston corers

Equipment performance:

Fitting all of the geophysical equipment on board a 19-ft. vessel required creative deployment, but most the equipment mostly performed well. Navigation was difficult due to shadowing by islands and peninsulas. The ORE power supply had intermittent problems apparently related to its cover interlock switch. No time was lost to equipment failure.

Cruise Summary:

Although plagued by bad weather, difficult logistics, and navigation problems, the cruise was generally successful. Submerged shoreline features were clearly observed on both the seismic and side-scan sonar records. Interpretation and mapping of these features will be required before these features can be related to earthquake events. Coring efforts were only partially successful; cores of Holocene lake clay were recovered, but this material was generally stiff and difficult to penetrate. No cores reached underlying coarser material associated with the submerged shorelines.

| | |
|----------------|------------|
| cc: R. Halley | T. Aldrich |
| H. Knebel | T. O'Brien |
| M. Bothner | E. Winget |
| N. Soderberg ✓ | |